MIAMI UNIVERSITY
JAN 1 3
LIBRARY

THE JOURNAL OF GEOGRAPHY

VOL. VI. OCTOBER, 1907 NO. 3

FIELD WORK IN THE CLASSROOM. II.

By PHILIP EMERSON
Cobbett School, Lynn, Mass.

A GENERAL presentation of the values of a real study of pictures as sources of information, and of the peculiar advantages offered by the stereoscope as a means of viewing distant scenes, was made in the first article. To exhibit clearly the method used for directing independent field study of foreign landscapes and life customs by means of the stereoscope, some extracts from the *Stereoscopic Field Guide,* published by Underwood & Underwood of New York City, follow, with accompanying reproductions of the stereographs. The text includes both the suggestions given to pupils as to the results to be gained from the picture study and certain explanations and helps prepared for the use of the teachers.

The treatment of the two scenes first presented here illustrates the guidance given students in observing types of physical features and related human life.

The next four scenes are designed to be studied as a group, and the text shows the treatment of buildings, clothing and customs from a truly geographical standpoint, that is their relation to climate and physiography. The following excerpt from the *Teachers Manual* shows the nature of the guidance given teachers.

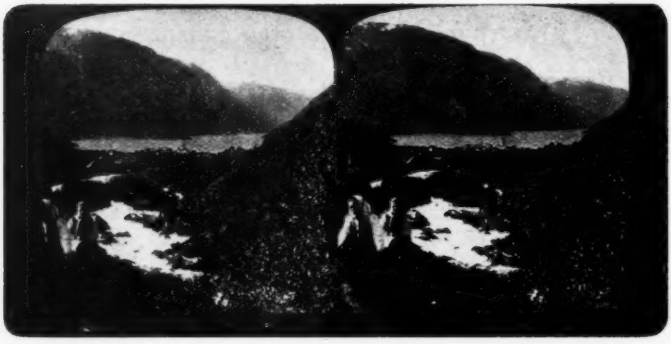
The three scenes that follow are illustrations of many of an industrial character. The questions prepared to guide their study are designed to emphasize features that must be comprehended in order to understand commercial movements. It will be noted that teachers are given encouragement to study the home field in connection with these studies of operations at the enormous plants of industrial centers.

The last scene is one of fifteen that present Greece and Athens. It is not expected that they will be used for class study, but abler pupils will take them from the school or public library and report on them to their mates. The related suggestions to teachers are given.

XUM

A Norwegian Fiord

Introduction. Upon the map of Norway find the Hardanger *fiord*. Follow it from the sea inland. How long is it approximately (see map scale) from the opening to the extremity of one of its arms? How does it vary in width? What enters the fiord at its head? Find other fiords. You are now to go to Odde. Find your position upon the map. You will look north.



Stereograph, Copyright, 1905, by Underwood & Underwood. Odde, and southern end of mountain-walled Sörfjord, north, Norway.

(a) What features of this scene make it picturesque and attractive? Why would you expect the surface of the distant water to be so quiet and smooth? Describe the degree of slope of the land bordering upon the fiord. From the way the valley sides descend to the water's edge what do you infer about the depth of the fiord close to the shore line?

Is the water of the fiord salt or fresh? How does its surface compare in level with the ocean? How do you explain the presence of snow at this season of the year upon that distant mountain of only moderate altitude above the sea?

(b) Think how the people who live in the houses yonder spend their time and earn their living. What opportunity for gaining livelihood would the waters of the fiord offer? The level tract of land surrounding the hamlet? The lower slopes of the hills about us? What do you think about the problem of their going lumbering in the winter?

What building is most prominent among the distant houses? What does its presence suggest about the habits of these folk? Do you think from

the number of houses in sight that there are enough people living here to fill it? What does this fact lead you to infer about the position which Odde holds to the region round about? By what methods of travel will people come to Odde?

Give a short account of an imaginary visit to this hamlet telling what kind of people you met, what they did for a living and what you saw on Sunday at the church.

(c) Study the advantages of Odde's location. Think first why it is easier to build houses and streets where they are than upon the steep sides of the valley. Infer also what opportunity the present location offers for growing vegetables and other crops. Consider next the importance of this valley behind us, through which the brook flows, in affording a gateway into the interior and mark, too, the easy means of communication with other settlements and with the outside world made possible by the waters of the fiord.

(d) The level land upon which the hamlet is situated is a delta plain. To understand how this plain was formed recall the deposits of sand and mud left in the street gutter or at the foot of a steep slope after a rainstorm: what brought this material there and why was it not carried further along? What effect does loss of motion have upon the power of the water to carry sand and mud?

Now perhaps you can describe in writing how the plain of Odde was formed. Note (1) its position in relation to the river and fiord, (2) the rate of the river's flow before entering the fiord, (3) recall the effect of the swiftly moving water upon the land over which it flows and the power of this water to carry sediment, then (4) infer where this river comes from and what it is likely to bring with it, and (5) what would happen where its current is stopped by coming into contact with the quiet waters of the fiord.

SUMMARY. Be able to recite upon the following topics:

The fiords of Norway.

What they are.

Of what use they are to the people of Norway.

Why tourists visit them.

Odde as a type of Norwegian Village.

Upon what kind of a land form these villages are situated.

How this land was made.

Advantages and disadvantages of location.

Daily habits of the people.

Find Chamonix on a map of Switzerland. In what country is it? On

what river? Among what mountains? In what direction is Mt. Blanc from Chamonix? You are now to take a position opposite one of the mountain hamlets that cluster upon the sloping sides of the valley at the foot of Mt. Blanc and look north.

(a) In what kind of a region do we find ourselves? To what type of mountains do the peaks opposite belong? Why call this valley pictur-

From Stereograph, Copyright, 1900, by Underwood & Underwood. The Picturesque Chamonix Valley—Alps.

esque? You are looking north: what lofty mountain is almost directly behind you? (What time of day is it?)

Who are these people? What do they do for a living? What language do they speak?

(b) Compare the land upon which the distant houses are built with the top and sides of the mountain in character of surface and degree of slope. (Of what advantage is it to the little hamlet to be situated upon the south side of the mountain?) Where do you see the forest? What are those wriggling furrows upon the mountain side at the extreme left? How do you account for the deposits of sand and gravel at their lower

ends (recall what you saw over the roof of the hotel at Trafoi)? What effect does the forest covering have upon the wasting of the slopes?

(c) In the broad opening between the trees upon the opposite side of the valley what evidence do you see of the effect of mountain torrents? Under what conditions and at what time of the year are those streams likely to be swollen and dangerous? What must be the character of the soil near the bottom of the slope over which these brooks flow? Why is the hamlet situated at one side of the broad opening?

(d) Are the houses which make up the hamlet large or small? High and narrow or low and broad? Do you think they are intended for one family or more? What reasons can you give for building houses like these? (Why are the rocks placed upon the roof of this building at our right?)

What use is made of the gently sloping fields (see the one near by at our left)? What makes you think that the land around the houses upon the opposite slope is used for a similar purpose?

(e) Note where the slope upon which we are standing meets the opposite slope. Find the line of bushes and low trees that marks their junction. What would become of the rainfall here that does not sink in? What becomes of the water that flows down the mountain sides? Further up the valley at the right are the melting glaciers and other streams. What would you expect to find, then, where the two side slopes meet?

(f) Draw an outline of the mountain crest projected against the sky. Compare the form of the highest peaks with the dome at the right of our view. Contrast the character and appearance of the surface of the loftier parts of the mountain with the wooded slopes below. How do these mountains compare with those in Tyrol? Describe the form, slopes and general appearance of Alpine mountains.

CONCLUSION. Give a description of the valley of Chamonix, telling where it is, what makes the scenery attractive, the kind of mountains in which the valley is situated, the number and appearance of the mountain torrents, where the hamlets are located, the kind of houses, and what the people do for a living.

JAPANESE HOMES

INTRODUCTION. What is the climate of southern Japan—seasons, temperature, rainfall? What characteristics must houses have to be suited to such a climate? Severe earthquakes occur in Japan. What kind of buildings as to height and materials would be least injured by earthquake shocks?

XUM

Under your teacher's guidance the class may rapidly recall the historic orders of art and architecture from Grecian to Renaissance, that you have studied in your course in drawing. How much effect will you expect these to have had in Japan? Why?

You are now privileged to visit some Japanese homes in the capital of the empire. First you are to stand on the lawn before the house of a leading Japanese noble, and study the structure of the dwelling.

From Stereograph, Copyright, 1904, by Underwood & Underwood. South front, home of Count Okuma, Tokio, Japan.

What characteristics of this building and its surroundings make it evident that it is the home of a Japanese of means? Since it is fairly typical of Japanese homes, what does it tell us about the people? (Consider such qualities as love of display, artistic taste, culture, extravagance, and their opposites.) The massive, wide-spreading roof offers protection from what two features of Japanese weather? What provisions for ventilation do you see? Why are they needed? Why no chimney? Notice the two walls of sliding panels (a third of wood at the left) forming a corridor around

the central apartments. What advantage has this construction in the winter? How do the character of the foundation and the construction of the walls adapt the house to escape serious injury from earthquake shocks?

From Stereograph, Copyright, 1904, by Underwood & Underwood. Serene simplicity of home of Count Okuma, Tokio, Japan.

What American invention on the roof witnesses that Japan has adopted western science?

How does the home of the average wealthy American differ in construction, ornamentation and surroundings from this? In what sections of the United States, or for what purpose, would Japanese architecture be suitable?

What main difference between the dress of men in Japan and in America? Which most pleases the eye? Why? Is it to be expected that all the Japanese will adopt the costumes of western civilization? Why?

You are now to enter this dwelling and study its interior.

What is the most striking thing to you about the interior of a Japanese dwelling? What feature do you most approve? What does this apart-

ment tell you about the characteristic qualities of the Japanese? Why is the term "serene simplicity" used in the title?

Compare these rooms with those of an American home. Consider the furniture, ornaments, floors, windows and outer walls, doors and partition decoration. What product of western science do you notice? Does the scene suggest that the Japanese have slavishly copied the West, or adapted its inventions without abandoning their own customs? Does this home indicate that Japan was civilized by, or before, contact with Western peoples?

You may now observe a party of young Japanese women, professional musicians and entertainers, and note their polished courtesy.

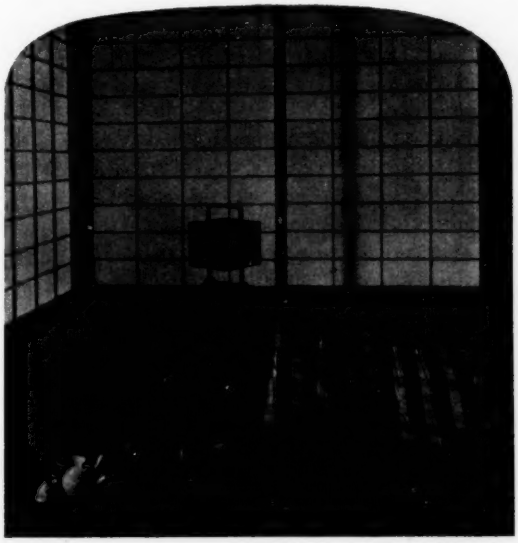
From Stereograph, Copyright, 1904, by Underwood & Underwood. Charming Geishas at Dinner, Tokio, Japan.

What is the most remarkable difference between the Japanese method of serving a meal and our own? What dishes or utensils do you recognize? The hostess is serving tea: how? How is soup served and taken? What strange table utensils is one using with which to take up a bit of fish or vegetables? What kind of food, the mainstay of the meal, do you think is kept warm in the covered wooden dish?

Are household appointments more elaborate and burdensome in Japan or in America? What characteristics of the Japanese suggested by the corner beam, the plant, and the ornaments the women wear in their hair?

Does the dress of Japanese women allow free movement? (Return also to Position 1). Does it allow healthy development of the body? Is the dress of the hostess in good taste, judged by our standards? Compare the dress of the geisha girl with corresponding elaborate costumes in America.

The furniture of a Japanese bedroom is very different from what you are accustomed to see at home. Bedding is packed away every morning and brought out again at night.



From Stereograph, Copyright, 1904, by Underwood & Underwood. Girl sleeping between wadded *futons*, head on wooden support, Hikone, Japan.

Do you think you would rest comfortably on a Japanese bed? How does this one differ from your own? What features of Japanese houses make thick bed clothing welcome in the cool season? Recall how the women seen at dinner dressed their hair and judge one advantage in this

style of pillow. Is a race that uses such pillows restless or calm in temperament? Could Americans sleep soundly in rooms whose walls admitted light?

What fuel must be used in the stove, or brazier, for heating the tea and the room? Should fire insurance rates be higher in Japan or America? (Consider the character of the houses as well as the methods of heating.) Can you tell what the other furniture of this room is used for?

SUPPLEMENTARY. Read the brief account of Japanese home life in the book of selections from the *Youths' Companion* entitled *Toward the Rising Sun* (Ginn & Co.). Read other descriptions of Japanese home life in such school readers as Carpenter's *Asia* (American Book Co.), or Chamberlain's *How we are Sheltered* (Macmillan Co.), and such books for children as *Our Little Japanese Cousin* (L. C. Page & Co.).

When time allows visit Kyoto, near which you have already stood, to study the outdoor home life of the Japanese.

Would you like to join a Japanese family picnic? Why? Do we love blossoms as they do? Compare the gardens of Mr. Namikawa (which is typical of Japan) with an ordinary American backyard. Also with the grounds of a fine suburban residence in America. Notice the minature landscape created, with bridges, islands, dwarf trees, stone lanterns and other formal features. Has density of population influenced the character of gardens in Japan and America? Can you make your own backyard at home a more attractive spot for home life?

Write an article for your school paper describing features of your visit to a Japanese home. Emphasize the characteristics of Japanese homes that you would advise Americans to adopt.

The architecture of Japan resembles that of China, as a result of Japan's position. Roofs are the prominent feature of Japanese buildings, for they must give shelter from hot summer suns and from heavy rainfall. The sliding panels of lattice work and paper that form walls and partitions are adapted to sultry sunny days of the long summer of southern Japan, but when the damp and chill winds of the cool season come a double or triple outer wall is welcome, and wadded clothes, as one shivers over a charcoal fire. These features are due to the climatic position of Japan. Japanese buildings are usually light and they are also firmly framed; they yield to earthquake shocks without injury, they also burn quickly. They stand above the ground on posts that rest on stone sockets, and thus the frame is little affected by any ordinary earth movements.

The subject "Japanese Homes," and the supplementary topic, "Japanese Handicrafts" afford opportunity to present the fine artistic taste of the

Japanese, their love for flowers, the care they give to their home grounds, and the simplicity of their home life. The teacher who has read such books as Gulick's *Evolution of the Japanese,* and Knox's *Japanese Life in Town and Country* will be able fully to use the opportunity for the improvement as well as the information of her pupils.

Iron and Steel.

Introduction. What is meant by the Stone Age in man's development? The Bronze Age? What age followed? What metal is most important to-day?

Were iron and steel not known and used, could texile factories be equipped with machinery and engines? Or light, strong agricultural machines be supplied to raise food cheaply? Or strong, swift locomotives and steamships be built to carry the world's enormous commerce? How important is steel to industry to-day, then?

What countries have rich iron deposits? Which have convenient coal measures? What countries, then have the best foundation for industrial and commercial success? Which have developed their under-earth resources?

Home Industries. What workers in iron are there near your school? Visit the blacksmith's shop. What does he make? How does he heat steel and iron? And why? How work the metal? Whence does he get the steel bars and rods he uses as materials?

Visit a machine shop. What can the machines there do to steel bars the molds made? How is the iron or steel melted? Why does not the furnace itself melt? How is air supplied to make the fuel that is mixed with the iron burn fiercely? What is pig iron? Whence does the foundry get it?

Visit the machine shop. What can the machines there do to steel bars and castings? Compare the machines with those in a local woodworking mill. Do the machinists need muscle or skill the more? Compare the machine shop with the blacksmith shop as regards the methods of work and the character and finish of its products.

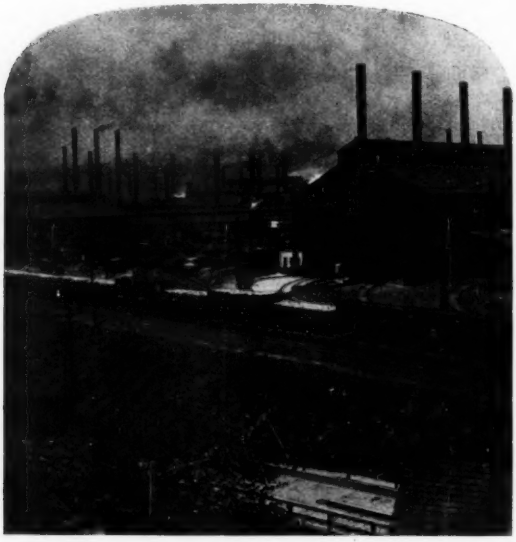
Steel Works.

You are now prepared to visit one of the great steel works of the country. Where is Pittsburg? Why is it the steel center of America? You are to take Position near there overlooking the great Homestead plant of the United States Steel Co.

How many chimneys can you count? There are others still out of your sight. Can you count the number of cars, or even tracks, in just this part of

the yard? What chance would a small mill have to compete profitably with this vast plant? Would it be easy to secure the twenty or thirty million dollars necessary to build and equip a competing plant? What are several reasons for the concentration of the steel industry in limited districts of a few countries?

Can you see the valley side, and the level sky line of the upland level?



From Stereograph, Copyright, 1903, by Underwood & Underwood. Steel Works, Homestead, Pa.

Where are the works located, then? What advantages for transportation does this give them? How many open cars of limestone can you see? It is used with the ore and coke in the blast furnace, in order to cause the earthy impurities to melt and separate from the metal. Consider again the question that closed the preceding paragraph.

You are next to stand on a car top beneath two towering furnaces.

What makes the scene so impressive and awful? What hides the chimney top? Compare the structures in size with the platform car or the man beside it. Of what materials are they built? What impression is given

as to the cost of steel works? What adjectives express the character and effect of this striking scene?

Notice the deep inclined elevators on the further side of the two furnaces, up which the ore, coke, and limestone are hauled to the furnace tops. Between the furnaces are eight tall *stoves* in whose flues the blasts of air, driven by the engine, are heated before entering the lower part of either

From Stereograph, Copyright, 1903, by Underwood & Underwood. Red-hot iron flowing from blast furnace, Pittsburg, Pa.

furnace. The gases driven off in reducing or changing the ore to liquid iron and slag are conducted down from the furnace top in the great branched pipes you see and then they are burned in the stoves. Why heat the air blast? Why use escaping gases to do this? Compare one of these gigantic furnaces in its purposes, parts and operations with the furnace at your local foundry, or with a blacksmith's hearth and fire.

What is flowing from the hearth, or lower part, of the nearest furnace? How is the great *ladle,* or bowl of steel and firebrick, into which the molten metal flows mounted? Why so? The iron will now be carried to a Bessemer steel converter and changed into steel.

XUM

Your next stand is in the rolling-mill, a building like that in the foreground on page 92, where a steel beam is being made.

What makes the long beam glow like the sunlit windows? What have you seen like it in a blacksmith's shop? See the powerful rolls through which it has come towards you. How many such sets of rolls can you count? Compare the action of their pressure, as they turn like a clothes

From Stereograph, Copyright, 1903, by Underwood & Underwood. Steel Works, Pittsburg, Pa.—beam of red hot iron in rolling mill.

wringer, to the effect of the blacksmith's hammer upon the hot iron placed on the anvil. Does the blacksmith do all of his forging to shape at one blow? Then why use many rolls of slightly varying forms and spaces? There are other rolls still on the rack at our left.

How many men to be seen? Notice the one standing by the levers on the raised platform. When he pulls a lever that causes an engine to set in motion the rollers on which the beam rests, what must it do? If by another lever he moves the entire roll table, with the beam upon it, to the left or right, where would the beam be rolled next? If beams were forged at the

expense of employing the hammers of many men could they be used for bridges and buildings freely? By making steam, electricity, and powerful machinery do the work rapidly and uniformly, what effect upon the cost of railways and iron structures?

SUPPLEMENTARY SUGGESTIONS. Use Poole's Index and find illustrated articles on the manufacture of iron and steel in current magazines. Gather a set of pictures illustrating the successive steps in such manufacture, and mount them for reference by other classes.

What products from rolling-mills are to be found in the manufactories and structures of your vicinity? What benefits do you get from the invention of the costly machinery that makes steel products so cheaply?

To what countries does the United States export products of its steel works? What other countries have many well equipped steel mills?

GREECE AND ITS PEOPLE.

Where is Greece? When was it most famous? What kind of people then lived in Sparta? With a library atlas you can locate seven of the eight positions you are to take.

What two contrasting land surface forms in Greece? Which seems more extensive? Confirm your opinion by reference to a relief map. Describe a typical Greek river of the interior. (Position 5R.) Most flow into bay heads, as seen from position 2R. What land form are they building there? How does the surface of Greece account for its division into many small states, like Sparta and Attica, in early times? What climate can you infer from the vegetation? What is the characteristic occupation of the interior? How do surface and climate favor it? Where is agriculture more common, as shown by checkered crops and tilled fields?

Describe the ruins you see. What do you infer as to the prosperity and population of Greece when they were built? Contrast the towns of Greece with those near your home. Describe a town house and its surroundings. Picture a Grecian shepherd and some scenes in his life. Describe a market day in Greece, and compare it with market scenes in Ireland.

ATHENS.

Where is the capital of Greece? Why so famous a city? You are to take seven positions there. Like any traveler, get Baedeker's handbook and study its maps to ascertain what you will see from each position.

Compare the landscape presented from the different standpoints, identifying at each position places previously seen or occupied; thus compare the mountain background as seen from Positions 9R, 10R, and 14R;

XUM

and locate your standpoints in Positions 9R, 10R, 13R, 14R, and 15R, as seen from Position 11R.

Describe the situation of Athens, and the surrounding land and coastal forms. Why should the early city, built in times of primitive warfare and piracy, have clustered about the Acropolis, at a distance from both mountains and seashore? Is the land generally productive? What relation had

From Stereograph, Copyright, 1905, by Underwood & Underwood. Athens and its Acropolis S. W. to Piraeus, from Lyka Cellos, Greece.

the olive groves on the river plain (Position 9R) to the city's location and early prosperity? What two values, or uses, have the near bays of the Aegean Sea for the city to-day? (Positions 9R and 10R.) Contrast the vessels near you, at the Piraeus, with those at the farther docks, as to character and use. Which denotes Athens a commercial center, and which the capital of Greece?

Where is the Parthenon? Describe the temple; the material used, the plan of the building, its pillars and walls. Does its condition indicate peace or war, prosperity or misgovernment, in Greece during recent cen-

turies? Study the Academy and its surroundings, and tell how you think the Parthenon and Acropolis once looked. Where have you seen porticoes or pillars in the Doric or Ionic styles of architecture before?

Why do many tourists visit Athens? Why is it an important and growing city to-day?

Library Reference Groups afford pupils who desire, or classes that can afford the time, an opportunity to visit Greece. Positions 1R to 8R are standpoints presenting the general geography, and Positions 9R to 15R give a good conception of Athens and the Parthenon.

Greece is a very mountainous peninsula, half drowned by ancient land depression, so that it has a very irregular outline. River deposits have formed some plains, especially at bay heads, and such level land is preferred for agriculture. These warm, fertile lands, protected by mountains and sea, and open to the stimulus of sea life and the influences of commercial intercource, fostered the development of civilization in Greece before the time of Christ. The cross ranges of mountains which separate the valleys and plains from one another, favored the division of Greece into little states that resisted union, and facilitated the conquests by Alexander and Rome. The climate, that of the horse latitude belt on the sub-tropical border of the temperate zone, is naturally rather dry, and shepherds are the typical figure of upland life, forests having been long stripped from most districts. The extensive ruins in regions now but sparsely inhabited bespeak the more settled and prosperous conditions of early times before wars of conquest and Turkish oppression devastated the land and despoiled such monuments as the Parthenon. Athens was located about the natural fortress of the Acropolis, which crag was far enough from the mountains and from the sea to prevent surprise of its defenders by a sudden attack. The olive groves of the plain gave the agricultural basis the early settlement required. The present growth of the capital and its seaport are significant of reviving industry and commerce in Greece, which are a natural result of its separation from Turkey and reopening to the free influences of civilization and education.

XUM

LIFE GEOGRAPHY FROM THE CHILD'S POINT OF VIEW.

THE pendulum which some years ago swung away from the old study of capitals and boundaries into undue regard for the exclusively physical phenomena, seems now to be coming to rest at a point betwen the two extremes. We are learning to combine the good in each. The definition, old as well as new qr old with a new significance, which seems to include the largest number of attributes of the subject is, "Geography is the study of the earth as the *home* of *man*."

The consideration of political and social problems is of growing importance, and in the selection and arrangement of the subject matter in the course of instruction this must more and more be recognized.

Geography approached from the human side contributes very largely to this social material. No other subject so well impresses the close relation of the various parts of organized society and their dependence upon physical conditions.

Starting with his own home, its surroundings and various needs, each of which is a source of interest to him, the child should learn to regard every other place as somebody's home, as dear to those living there as his own is to him. I think we are all too prone, first for ourselves and then with children, to feel and stimulate curiosity about differences between ourselves and other people, rather than sympathetic recognition of the universal, common interests. Not only in the minds of school children does the thought instantly flit to long cues and roast rats at the mention of the Chinese, or to wooden shoes when the word Holland is heard. This is scarcely consistent with our professions of universal brotherhood, since that relation is one to emphasize likeness rather than unlikeness.

Children should understand what the primal needs of man are, and how it is only in the efforts to realize these under varying natural and social conditions that the apparent difference of interest arises.

With this conception of the world as a great system of interrelated homes, comes the added realization that a home is something to be worked for, constantly re-created. Treated from the human side, Geography shows what the men of the past have done in controlling the forces of nature, and leads the child to an ambition to do the same. He is inspired by the achievements of men in dealing with natural laws. A mountain range, its appearance and physical causes and results may be made of intense interest to a class, but surely the lesson is not complete, nor the interest as

wholesome, as if at the same time that same mountain range were presented as a great barrier to human progress which served for many long years as a prison wall, and was finally surmounted by human ingenuity.

It is essential to understand the inorganic environment, in order to know what can be overcome, and what must forever command submission, but such understanding should always be the means to that end. The inorganic is in its proper place only when in vital relation to human affairs. A race becomes civilized only as it overcomes its environment and continues so only while the conquest advances.

What better analogy could be found for either teacher or class for overcoming adverse moral and spiritual environment?

There must have been something decidedly wrong in the teaching of the boy who told me that he considered South America the most important continent, because it has the largest river, and longest high mountain range, and great variety of climate, he "didn't care anything about people."

To be most valuable conscious strength and possibility should be accompanied by conscious weakness and humility before the inevitable. This gives the clue to the entire treatment of topics related to the earth as a planet, its rotation, revolution, climate, winds, etc. These are all conditions or phenomena entirely beyond human control which unvaryingly aid or thwart any possible human endeavor.

Thus in whatever connection the subject of winds is taken up, it will lead inevitably in two directions. First, to a consideration of the great importance of the winds in both benefit and injury to the life of humanity. Second, to the recognition that they are necessitated by the very existence of the earth as a planet, with its present form and movements, conditions to which the whole human family must bow in common.

Of course the study of industrial Geography may become as mechanical as that of physical features, bounderies and capitals, and any attempt to present every topic from the life side must become stilted and artificial. In a great many cases it cannot matter whether we begin with the manufactured article and trace it back to the soil which produced it, or begin with the soil and lead up to the finished product. What does matter is that the causal relation between the physical and the human be always remembered, so that work along one line always leads to work in the other. The important consequences of a particular physical phenomenon are oftenest human consequences. It cannot matter whether we talk first of the factories or the coal mines of England provided it is always shown that one made possible the other.

It is certainly most disastrous to this idea of inter-relation to teach the

course of a river in its physical aspects without closely connecting it with agriculture, water-power, and navigation. The anecdote of the High School girl who announced her discovery that a large river nearly always flows past a large city, and by so doing occasioned no especial amusement on the part of her class may be the ridiculously extreme result of such teaching.

There seems to be great difference of opinion as to how much Political Geography has a rightful place in the Geography course. Professor Dodge maintains that only the *need* for government, not its forms, should be taught. This extreme view is not followed in many text books. Of course the need for government is readily recognized by the children both in their home and school relations. But I have often felt that children growing up in homes and schools where the government is that of a somewhat modified monarchy, are not only not prepared to understand the democracies about which they study, but are not fitted to be active members of a Republic. Mr. Wilson Gill's experiment of organizing the Public Schools of Philadelphia and several other cities upon the model of a democracy has seemed to me most suggestive in this connection. Whatever may be thought of this as a method of discipline, it would be impossible to watch Mr. Gill organize a School City without being assured of the clearness of understanding of governmental usages which must come to the children participating in such a scheme.

I know of another teacher who played the different forms of government with her class, giving each the trial of a week or more. These are somewhat new applications of Plato's suggestion to study the greater through the small, but they seem to me practical ones. Most of the study of government is so external that it fixes in the mind certain catch words, rather than a clear recognition of the necessity and a solemn personal responsibility.

Another place where it is valuable to study the large by a little model is in the consideration of Industries. The most interesting presentation of this which I have known, was the organization by the class of an imaginary city as an industrial center. The children voted as to what kind of city they should build, mining, manufacturing, commercial, etc. They then chose the most advantageous site, and imagined themselves erecting rude huts and all working at the one chosen industry until they saw the need for differentiation of occupation. Then gradually the various main lines of business were taken up, the children recognizing that often the necessity for a certain product, and the resulting high pay for it, would induce them to enter an industry which would otherwise be avoided and that all

are necessary to each. This seems to me not alone a good way of simplifying the complex social relations, but an excellent means for instilling respect for the various industries, even the outwardly unpleasant ones, and, of securing recognition of their necessity for the welfare of all. This point cannot be too often dwelt upon.

A good topic to follow this is what several members of the class expect to do when they grow up, with a discussion of what the duties, hardships and rewards of each will be, all looking towards greater usefulness.

Since the number of topics is always very great, and no one text-book would ever take them up in the manner needed by any particular class, it can be made very interesting and valuable to have the class construct their own text-books in which to keep pictures, diagrams, maps or written material as the study advances.

Geography ought to assist very much in giving students the right attitude towards foreign travel. Much that is written and spoken by returned travelers is not much as to indicate or induce this broader view. So much that was seen was apparently looked upon for the sake of "having seen" it, and so much description dwells upon the petty oddities rather than the universal resemblances.

Instead of going to a new country or section as they would go to a circus, children should look forward to such a trip as one which will remove much false prejudice and misunderstanding. Any journey from home should widen their circle of friendship and lessen their sense of estrangement from those differing outwardly from themselves.

When we are discussing the great advance of modern methods of transportation, with their vast industrial results, let us not forget that to the ready means of communication more than to any other modern factor we owe our increased sympathy with other nations. It is impossible to say how much the cause of Universal Peace owes to the close inter-dependence of nations upon each other for the necessities of life.

A true conception of the complicated series of interrelations from the economic or any other standpoint, can only come with knowledge and maturity, but it can be suggested in even the very early years.

XUM

EDITORIAL

HIGH SCHOOL GEOGRAPHY

SOME time ago the JOURNAL editorially announced its belief that high school geography is not now all that it should be, either as to quantity or quality. Although there is a place, and an important one, for physical geography in secondary schools, it is still true that secondary geography is not on the whole a practical subject. The course in physical geography with laboratory work needs to be supplemented or, in some schools, replaced by a course in regional geography for the benefit of those pupils who will not go beyond the high school. With the increasing tendency to close the formal work in geography in the elementary schools in the seventh grade, few pupils have any workable knowledge of geography by the time they finish their secondary course. They know little of the geography of their own country and less of the geography of the other great nations of the world. They study the campaigns of Cæsar and the happenings chronicled in ancient and modern history perhaps with some reference to maps, but with no reference to the geographic influences that had a vital part in shaping the details of the subject they are considering. No one can fully appreciate the facts of history unless he understands the geography of the regions studied. Thus the study of history does not attain its full value because not studied with a due consideration of all the important factors which have shaped it.

Pupils who study no regional geography after the grade schools are not adequately prepared for either their school work or for life. They have no adequate preparation for the understanding of the happenings of the day and are practically ignorant of important geographical facts which are an essential part of the training of any intelligent man or woman.

Regional geography, rightly studied, is as capable of giving right training in methods of study as is physical geography. Regional geography and commercial geography are both very proper subjects for a secondary school curriculum. Commercial geography as a statistical subject largely is now a part of the curriculum of many secondary schools.

Is it not time that the regional geography of the United States and of Western Europe at least, with due reference to the commercial side of the subject, be included in the curriculum of any secondary school which is not primarily planned with regard to the demands of college entrance? Ought not regional geography, rightly taught, to be as valuable a subject for college entrance as is physical geography?

The JOURNAL believes that there is great need of advance along these lines and that high school geography is at present too stereotyped. The Editor will be pleased to receive the opinions of others in reference to the matter of high school geography and will be glad to publish contributions on this seemingly important phase of geographic education.

REVIEW

LANTERN SLIDE ILLUSTRATIONS FOR THE TEACHING OF METEOROLOGY, edited by Professor Henry F. Cox and Dr. J. Paul Goode. Bulletin No. 3 of the Geographical Society of Chicago. Published by the Society, 1906.

THE Geographic Society of Chicago made a more than valuable contribution to the cause of efficient geography teaching when it published, several months ago, a bulletin of 130 pages devoted to the question of teaching meteorology. While the bulletin is planned as an accompaniment to a selected series of 270 lantern slides, it is extremely suggestive to those who have no access to the slide collection. The volume includes eleven chapters, besides an introduction, as follows: (the number of accompanying slides being indicated in each case). The Use of the Lantern in Teaching Meteorology; A Partial List of Books and Materials for the Teacher of Meteorology; Eminent Meteorologists (6 slides); Weather Observatories (14 slides); Meteorological Instruments and Instrument Records (14 slides); Temperature Distribution (31 slides); Atmospheric Pressure and Circulation (23 slides); Sunshine and Other Optical Phenomena (8 slides); The Moisture of the Air (80 slides); Cyclones and Anticyclones (42 slides); Thunderstorms and Tornadoes (63 slides); Floods (14 slides); Synchronous Weather Conditions (6 slides); Life Response to Climate (5 slides).

Each slide is described simply and fully and the text description forms an effective and, in a way, complete guide for the teacher using the slides. The series has been chosen with skill and care by experts in meteorology and teaching so that as a whole it is the most effective aid to meterological study now generally available. Teachers of physical geography in secondary and normal schools, as well as in colleges, should know of the series and have it available for constant use. The slides may be obtained from the Central Scientific Company, Chicago, Ill.—R. E. D.

XUM

NOTES

*SECONDARY SCHOOL GEOGRAPHY: WHAT SHALL IT BE?—R. H. WHITBECK, State Model School, Trenton, N. J.—The physical geography of the years prior to 1895 was fragmentary and unorganized. The now famous report of the Committee of Ten called for a radical reform. The schools endorsed that report. Text-book makers quickly adopted the new idea, and a new type of physical geography gradually came into use. This new physical geography was really physiography. It laid practically the whole emphasis on the classification and description of forms of land, upon meteorology and dynamic processes generally. It is very closely related to dynamic geology.

The most widely used of the early reformed text-books scarcely referred to man's relation to any of these land forms which were described. It was for the most part a very *earthy* science. Man was left out. The making of mountains, their denudation, the various kinds of mountains—all these matters were described, but the mighty influence of mountains in human affairs was not touched upon. This kind of geography does not seem to regard the earth as the home of man, but rather, as an uninhabited globe, the seat of physical, but not of human forces. It is physiography, not geography.

In these same years the laboratory method in the teaching of science in secondary schools was rapidly gaining ground. Laboratory work was regarded as the right thing; consequently, it was reasoned, the laboratory method ought to be applied to physical geography. I have a strong feeling that, if the exact truth could be known, we should find that much of the indoor laboratory work in physical geography was introduced, not so much because teachers actually felt the need of laboratory exercises to add clearness to the study, as because they felt that, somehow, a science because it is a science ought to be taught with laboratory experiments. Suitable exercises had to be devised. Laboratory manuals of all degrees of merit were published. I believe that it is the private, though perhaps not the publicly expressed opinion, of our experienced teachers of physical geography that the study is not lending itself readily to the laboratory idea. By the very nature of the subject, about the only laboratory is the field. Without a doubt there are profitable laboratory exercises to be done indoors; the possible danger lies in bringing in kinds of work which are not profitable, all things considered.

It is quite the common practice, in schools where physical geography

*A paper read before the New Jersey State Science Teachers' Association, May 11, 1907.

is seriously taught, to give one year of daily recitations to it. If this allotment of time be granted, then the question arises, What shall that year of study consist of? The following considerations will help in arriving at the answer: (1) That not one high school student in 5,000 will become an expert geographer and this one will go to college anyway. (2) Very few will become teachers of either elementary or secondary school geography without further study in a normal school or college. Moreover, not one person in 25 who enter the first year of the high school ever becomes a teacher at all. Manifestly the high school course in geography need not be shaped primarily to fit the needs of future teachers, though this may enter as a consideration. The fact is that the vast majority of those who study geography in the secondary schools, other than normal schools, are to become the men and women of affairs, salaried employees, home makers, professional or business men and women. It seems only reasonable, then, to decide that the course in geography ought to be planned with our chief thought for the interests of that great majority who are to be the men and women of domestic, social, civic, and business affairs. Considering the matter from this point of view, I would suggest the following: (1) That the *basis* of the high school course in geography should be physical geography with the elimination of many details now found in the text-books; this study of physical geography to be covered in about one half year. (2) That the second half year be devoted to the study of life relations, largely human relations, and involving a considerable commercial geography.

By a judicious sifting of what is really worth studying seriously, from that which is merely worth a thoughtful reading, any one of the good text-books in physical geography can be covered in half a year. If much of this is soon forgotten, as it will be, there is no harm done.

Text-books in physical geography, the things that largely govern our school courses, are undergoing beneficial changes. The changes ought to go on still farther in the same direction, as they unquestionably will. For example, one of the newest of the text-books gives 30 pages to a description of the following kinds of plains: Marine plains, lake plains, stream plains, waste plains, wave-cut plains, peneplains, and volcanic plains. It gives 28 pages to playa lakes, lava dam lakes, crater lakes, glacial lakes, delta basins and lakes, landslide lakes, coulee lakes, and lakes without outlets. To "The Importance of Lakes in Human Affairs," it gives about a half page. I cannot persuade myself that a detailed knowledge of all these varieties of plains and lakes is at all necessary. Only specialists profess to know such details. The author of the book has adopted a wiser

plan in his treatment of the subject of mountains. Here he has given half of the space to a chapter on "The Influences and Resources of Mountains." In this topic he has broken away from tradition, and has done so with undoubted gain.

The sweeping change in the character of Professor Tarr's New Physical Geography as compared with his earlier books is significant. His first and second books written twelve or more years ago, contain practically nothing on the influences which physiographic and climatic factors exert upon the life and activities of man. The last book, written some five years ago, contains in nearly every chapter at least a brief discussion of human relations. He gives one long chapter to the topic, "Man and Nature," and another to the "Physiography of the United States," a thoroughly humanized chapter. Fairbanks, in his text-book recently published, gives nearly half of the book to a discussion of the "Physiography of the United States," with constant reference to the life relations. This is a forward step, and one which is likely to be followed by others in the same direction.

What changes, then, seem logical and desirable with regard to secondary school geography? First, a pause; a candid consideration of the question Is this study really a laboratory science to any extent? Is our present physical geography, with its details of seven kinds of plains, eight kinds of lakes, and nine kinds of mountains, sane geography? It may be, for those who are to specalize in physiography or who expect to teach it, but such students may justly expect the opportunity of studying it in higher schools. The secondary school course ought to be built on broader lines. I believe that the highest service that geography can do for the class of students whom we are considering, will be performed by making it a more broadly cultured study and less narrowly scientific.

Having had half a year of physical geography with a few laboratory exercises and much field work, if field work is at all possible, I should then like to have the course become quite largely a study of geographic influences: a few selected studies of the geographical control in historical events connected with our own country, to show the relation between history and geography. Such studies are found in Professor Brigham's "Geographical Influences in American History," or in greater detail in Miss Semple's "American History in its Geographic Conditions." I should like to have a study of valleys as the natural highways of exploration, of conquest, of travel, the places of fertile lands, the places where people choose to dwell, where cities grow up, where wealth will accumulate and great industries will thrive. A study of mountains as nature's great

boundary lines of separation, and of isolation, the barriers to the migration of plants and animals and men, the last refuge of vanquished peoples, the shelter of the weaker tribes that flee to them and among them perhaps grow strong and free or, cut off from the world, live on for thousands of years, as have the Basques of the Pyrenees, preserving languages and customs which perished from the plains long, long ago.

A study of coast line and its influence upon the exploration of a new country, and its settlement; its influence through harbors upon the location of commercial cities, the gateways of a nation's trade, the points where the sea routes and land routes meet. A study of such specific cases as the fiorded coast of Norway and the evident influence of that coast in producing a race of mediæval vikings, and the best sailors of the world's modern navies. A study of the causes which lead to the locating of cities and their growth, to the localizing and the migration of certain industries. A study of the more evident effects of social, religious, and racial factors upon a nation's development or lack of it. Such influences are strikingly shown in the condition of China, India, Turkey, and Spain. Such studies in a secondary school are necessarily superficial, yet they are stimulating and broadening because they introduce great principles. They open one of the doors to culture. They expand the range of interests and widen the mental horizon. The study of the whole field of ancient history in the secondary school is superficial, yet it is exceedingly broadening to a young person.—*School Science and Mathematics.*

WHAT IS GOOD GEOGRAPHY?—The following questions have recently been published as good review questions for one month's work in the fourth grade in a large city school system:

What is the shape of the earth?
What is its size?
Name the two hemispheres, and the grand divisions in each.
What is a bay? What is a gulf? What is a sea?
Name the gulfs and bays around North America.
What is a peninsula?
Name two important projections of North America.
What is an island? Locate three islands around North America.
Describe the cross section of North America.
Name the continents in the order of their size. In which hemisphere is each continent located?
Taking Europe as a standard, compare its size with the other continents.

What direction from North America is Asia? Europe? South America?
In what zones does North America lie? Mention some plants and animals of each of these zones.
Name the largest city of North America.
Where are the timber regions of North America? The wheat regions? The coal fields?
What is a river system? Name three in North America.
What is the longest river basin of North America?
What are the mineral resources of North America?
Name the countries of North America and the capital of each.
What is the Tropic of Cancer?
What is the Equator?
Why is it colder in the Frigid Zone than in the other zones?
What are the oceans around North America?
Name the largest mountain range of North America.
What has altitude, nearness to or remoteness from ocean, and winds to do with the climate of a country?
Name one seaport of Canada. United States. Mexico.
Why is New York City a great commercial city?
What group of islands lie southeast of North America? Which of them belong to the United States?
How would you go from New York to New Orleans by water?
What is the prevailing language of the United States? What nationalities are represented in Canada? In the United States? In Mexico?

Do not questions of this type at least suggest that geography teaching is still far from what it should be even where we might expect good, practical and valuable work? What has become of the "causal notion" or of sanity if the ground indicated can be "covered" so quickly and is treated in such a skeletal way?

Rate of Recession of Niagara Falls.—In a simply written and interesting account of the recession of Niagara Falls, Mr. G. K. Gilbert of the United States Geological Survey presents most clearly the results of his recent studies of the Niagara crest line. This report is published as Bulletin 306 of the United States Geological Survey. Summarizing the several surveys made in 1842, 1875, 1886, 1890 and 1905, Mr. Gilbert presents the following conclusions:

The data for computing the rate of recession of Niagara Falls include

surveys of the crest line made in 1842, 1875, 1886, 1890 and 1905, and camera-lucida sketches made in 1827. During the period covered by these data the local conditions affecting the rate of recession have not differed to an important extent from the natural conditions. The present and prospective diversions of water for economic uses interfere with the course of nature and may be expected to modify the rate of recession. The natural rate of recession of the Horseshoe Fall is desired by geologists in connection with estimates of the age of the river. The geologic bearing of a rate modified by human agency is less direct. The rate of recession of the American Fall is of interest to geologists because somewhat representative of the river's activity in gorge making when the volume of water was much less.

The rate of recession of the Horseshoe Fall, or the rate of lengthening of the Niagara gorge, during the sixty-three years from 1842 to 1905 is found to be 5 feet per annum, with an uncertainty of 1 foot. For the thirty-three years from 1842 to 1875 the rate was apparently slower than for the thirty years from 1875 to 1905. The rate of recession of the American Fall during the seventy-eight years from 1827 to 1905 was less than 3 inches per annum.

The time consumed in the recession of the falls from the escarpment at Lewiston to their present position, or the age of the river, is not here estimated. It can not properly be computed without taking account of all conditions, local and temporary, affecting the rate of recession, and some of those conditions varied greatly from point to point and from time to time.

THE DISTRIBUTION OF DAYLIGHT AND DARKNESS.—The following general statements may be made:

1. At the Summer Solstice:
   - A. Days increase in length from the equator, latitude 0° to 66°.5, *i.e.*, they increase from 12 hours to 24 hours. Beyond latitude 66°.5 day is continuous.
   - B. Twilights are shortest at the equator, 1 hour, 20 minutes, and increase to latitude 48°.5 where they are 8 hours, and there is no deep night.
     Beyond 48°.5 they decrease to latitude 66°.5 where they are zero.
   - C. Nights are longest at the equator and decrease from this latitude to latitude 48°.5 where they become zero.
2. At the Equinoxes:
   - A. Days are 12 hours long from the equator, latitude 0°, to the pole, latitude 90°.

B. Twilights are shortest at the equator, 1 hour, 12 minutes, and increase to 72° where they are 12 hours; they also continue 12 hours long to the pole, where they are 24 hours.

C. Nights are longest at the equator and decrease to latitude 72°. where they are zero.

3. At the Winter Solstice:

A. Days are longest at the equator and decrease to latitude 66°.5 where they are zero.

B. Twilights are shortest at the equator and increase to latitude 66°.5 where the 24 hours are divided between twilight and night. Beyond this they decrease until at latitude 84°.5, where they are zero. Beyond this latitude the 24 hours are all deep night.

C. Nights are shortest at the equator where they are 9 hours, 20 minutes. They increase to latitude 84°.5 where they are 24 hours, and remain 24 hours to the pole.

Thus it is quite clear why cold increases from the equator to the pole, and at the same place the seasons vary at different months.

—*From Circular describing Seasonal Twilight Chart* published by Arthur W. Hall, Scientific Company, Boston, Mass.

GEOGRAPHICAL BOUNDARIES.—The land with the most effective geographical boundaries is a naturally defined region like Corea, Japan, Australia, Egypt, Italy, Spain, France or Great Britain—a land characterized not only by exclusion from without through its encircling barriers, but also by the inclusion within itself of a certain compact group of geographic conditions, to whose combined influences the inhabitants are subjected and from which they cannot readily escape. This aspect is far more important than the mere protection which such boundaries afford. They are not absolutely necessary for the development of a people, but they give it an early start, accelerate the process, and bring the people to an early maturity; they stimulate the exploitation of all the local geographic advantages and resources, the formation of a vivid tribal or national consciousness and purpose, and concentrate the national energies when the people is ready to overleap the old barriers. The early development of island and peninsula peoples and their attainment of a finished ethnic and political character are commonplaces of history. The stories of Egypt and Greece, of Great Britain and Japan, illustrate the stimulus to maturity which emanates from such confining boundaries. The wall of the Appalachians narrowed the westward horizon of the early English colonies in America, guarded them against the excessive expansion which was undermining the French dominion

in the interior of the continent, set a most wholesome limit to their aims, and thereby intensified their utilization of the narrow land betwen mountains and sea. France, with its limits of growth indicated by the Mediterranean, Pyrenees, Atlantic, Channel, Vosges, Jura and Maritime Alps, found its period of adolescence shortened and, like Great Britain, early reached its maturity. Nature itself set the goal of its territorial expansion, and by crystallizing the political ideal of the people, made that goal easier to reach, just as the dream of "United Italy" realized in 1870 had been prefigured in contours drawn by Alpine range and Mediterranean shoreline.

From Geographical Boundaries, I. By Ellen Churchill Semple, Bulletin of the American Geographical Society, July, 1907.

COCOANUTS AND THE COPRA OF COMMERCE.—The cocoanut is marketed chiefly in the form of copra, a name applied to the dried meat of the nut, used in the production of oil, which is in turn employed in the manufacture of soap, candles, and a so-called butter.

The fibres are used in the manufacture of mattings, some of which are reimported into the countries whence the fibres were obtained, and they are also used in the manufacture of brushes, brooms, rope and twines of several kinds.

Of the three important products obtained from cocoanuts, namely, cocoanut oil, flour, and lard, the first product is manufactured at the places where the cocoanuts are cultivated, by extracting the white pulp of the nut and depositing the same in pieces in a wooden trough, from which the oil drips and flows by itself when exposed to the sun. As the liquid thus obtained abounds in impurities and is liable to decomposition, the copra or pulp is at present treated by means of improved processes in the factories established at Marseille, which are the most important in Europe, yielding as much as 60 per cent. of refined cocoanut oil. From this refinement of the cocoanut has naturally resulted the cocoanut lard industry, which has become so general abroad under the names of vegetaline, vegetable lard, taline, and cocoaline. These lards are rich in nutritious substances, and neither in flavor nor appearance remind the consumer of their origin. Its patrons have gone so far as to affirm that this vegetable lard is more nutritious than animal lard, inasmuch as it contains 90 per cent. of grease, while the beef lard, for instance contains only 80 per cent.

Cocoanut oil is mainly used in the manufacture of soap, three-fourths of the soap stock in the great manufactories of perfumery consisting of

cocoanut oil, which communicates to the paste formed an extraordinary fineness, rendering it also exceedingly foamy.

The flour which is made of cocoanut, and which is a product derived from the dry pulp after being ground or scraped, is exclusively used in confectionery stores.

The cocoanut tree yields many other valuable products. For instance, the outer cover of the fruit is used in the manufacture of rope for ships, tow for calking, and for many other purposes. The inner cover, which is hard and smooth, is used as vessels, spoons, coffee cups, and also for veneering furniture, while the outer part of the trunk is considered very valuable, and is used for English cabinet works under the name of "porcupine wood," and in addition, the trunk itself is utilized in the construction of houses, bridges, etc. Finally, the leaves of the tree are used by Indians for making baskets and mattresses, and with the residuous fibres they manufacture excellent brooms. Manufactories established mainly in England and the United States, also use to great advantage the leaves of the cocoanut tree, from which they manufacture brushes, mattresses, etc.

—*Bulletin Bureau of American Republics.*

NOTICE TO SUBSCRIBERS

The present delay in the date of publication of the JOURNAL OF GEOGRAPHY has been occasioned by unexpected difficulties in changing the office of publication from Syracuse, N. Y., to Teachers' College, New York City. These difficulties have been largely overcome, now, and application has been made for entry of the JOURNAL to second-class mail privileges and decision is expected shortly. A favorable decision will remove the last obstacle to the JOURNAL's prompt appearance. The November number will follow very shortly after this number and the succeeding numbers will be pushed forward as rapidly as they can be printed.